

RADIO

THE NATIONAL TRADE MAGAZINE

OCTOBER, 1932

LET YOUR CUSTOMER SELL HIMSELF A NEW SET OF TUBES WITH

The
Preceptor
All purpose
Tube Tester

PATENTS PENDING

A SCIENTIFIC INSTRUMENT OF EXCLUSIVE DESIGN

DIFFERENT!

Appeals to the layman because he can understand how it operates.

SCIENTIFIC!

Because it is calibrated to the actual characteristics of perfect tubes.

TIME TESTED

Yet never obsolete. Never becomes obsolete as provision is made for testing new tubes as they are introduced. Has been used for years in the shops of one of the world's greatest radio and tube manufacturers.



IT'S PORTABLE

The Preceptor Tube Tester is a scientific instrument of advanced design. It operates on a method of comparison between the known characteristics of any given tube and the tube to be tested.

There is no guess work about any test performed on the Preceptor. Every step is positive, sure and clear-cut. You cannot make a mistake and you may be perfectly certain that a tube tested in the Preceptor is in the condition indicated. If it is good—it's good. If it is bad—it's bad, no matter what any other tester may indicate.

Invite your customer to inspect the Preceptor and decide whether he needs new tubes or not. The graphic manner in which the Preceptor operates will appeal to your customer and actually make him skeptical of his old tubes. The result is many more tube sales.

Indorsed by leading radio engineers.

Also available in a counter model.

THE GREATEST AID TO TUBE SALES EVER DEVISED

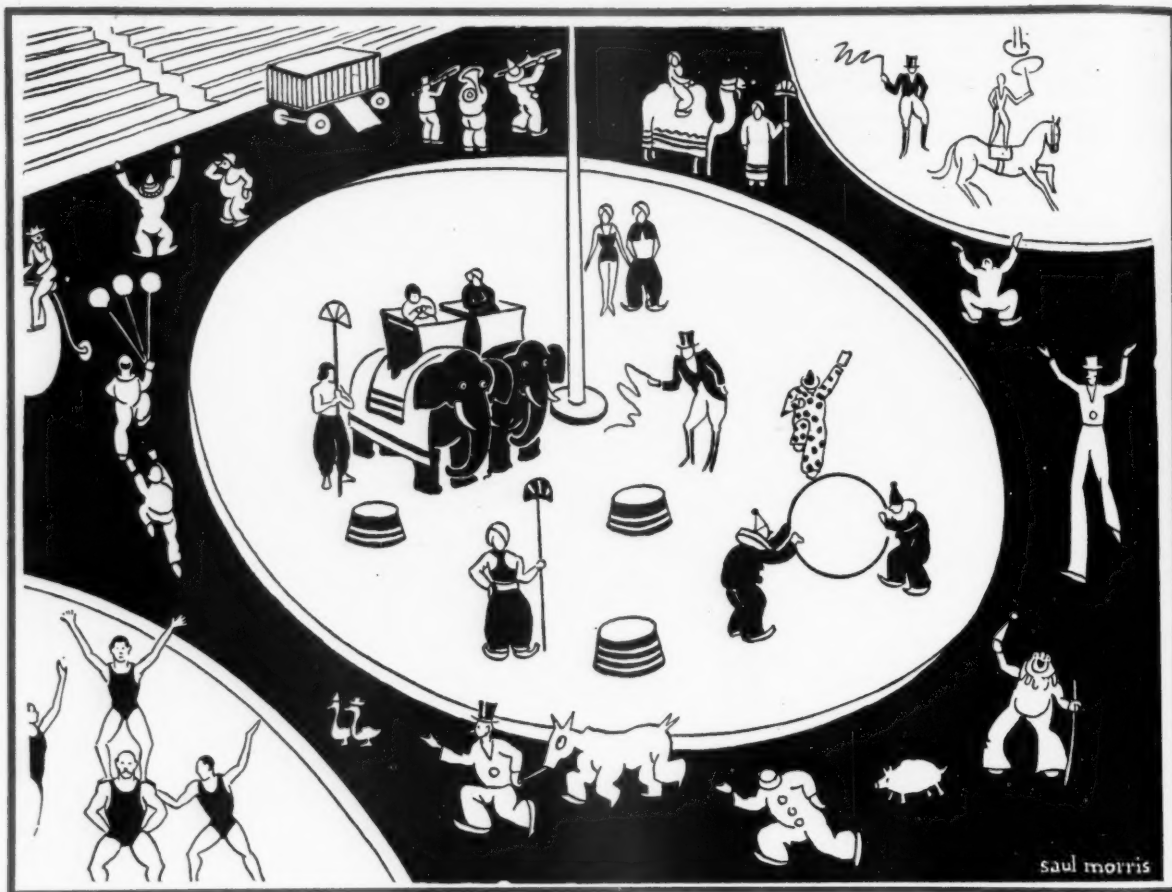
RADIOPHONE SALES CORPORATION

1924 BROADWAY

OAKLAND, CALIFORNIA

RADIO JOBBERS — There Is Some Territory Still Open. Write Us For Our Distributor's Proposition.

IT TAKES MORE THAN BALLYHOO TO MAKE A CIRCUS



Barnum knew the value of ballyhoo, but he gave his public a good show—more than their money's worth.

It has consistently been the Remler policy to give dealers extra quality and greater value for less money. That means that Remler receivers have higher profit possibilities; it means increased customer satisfaction and goodwill.

And now when the public is getting wise to the fact that cheap merchandise is not always a bargain, the swing is to Remler. Climb on the band wagon now with the new six tube Remler Superheterodyne.

This new receiver is truly an aristocrat. The circuit has been engineered to take advantage of the new type tubes. Better tone—distance—sharp tuning—sturdy construction—new cabinet, and optional short wave feature.

REMLER COMPANY, Ltd.
2101 Bryant St. San Francisco, Calif.

**Remler Model 10-3
Six Tube Super
List \$39.75**

With Short Wave — \$42.75

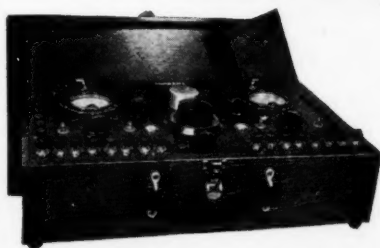


REMLER — THE RADIO FIRM AS OLD AS RADIO

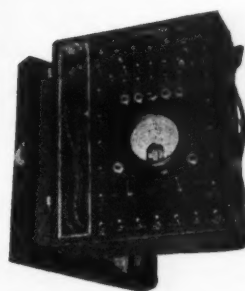
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STAND BY

FOR THE "SUPREME" 1933 Service Instruments



**SUPREME
DIAGNOMETER
AAA-1—\$147.50**



**SUPREME ANALYZER
Model 56—\$56.25**

**SUPREME TUBE-O-METER
Model 66—\$59.75 Stand, extra \$7.50**

All prices net f.o.b.
Greenwood, Miss.

See these jobbers today

"Supreme" Distributors

ALABAMA
Birmingham—Birmingham Electric Battery Co.
Mobile—McGowin, Lyons Hardware Co.
ARKANSAS
Little Rock—Fones Bros. Hardware Co.
CALIFORNIA
Los Angeles—Kierulff & Ravenscroft, Inc.
Radio Manufacturers' Supply Co.
Radio Supply Company
San Francisco—W. E. & W. H. Jackson, Inc.
Kierulff & Ravenscroft, Inc.
COLORADO
Denver—Hendrie & Bolthoff Mfg. & Sup. Co.
CONNECTICUT
Hartford—Hatry & Young, Inc.
Radio Inspection Service Co.
DISTRICT OF COLUMBIA
Washington—Capitol Radio Wholesalers
GEORGIA
Savannah—Frank Corporation
ILLINOIS
Chicago—Newark Electric Company
Radolek Company
Springfield—Central Auto Equipment Co.
INDIANA
Indianapolis—Van Camp Hdw. & Iron Co.
IOWA
Dubuque—Crescent Electric Supply Co.
KENTUCKY
Louisville—Harbinson & Gathright, Inc.
Paducah—Rhodes-Burford Company
LOUISIANA
New Orleans—Carbine-Harang Mach. & Supply Co.
Electrical Supply Company
MAINE
Randolph—O'Connor & Morang
MARYLAND
Baltimore—Stewart-Warner Sales Company
MASSACHUSETTS
Boston—Sager Electric Supply Co.

Send coupon, now, for complete catalog, showing all the new SUPREME INSTRUMENTS, kits, combinations and service-men's parts and accessories.

Now . . . the name "SUPREME" glows with added lustre as the most diversified service line in the Industry—over thirty new instruments, combinations and kits, and myriad attractively priced parts and accessories.

Ask any of the "service-jobbers" listed on this page—get a demonstration of the instrument that every real radio-man wants—SUPREME DIAGNOMETER AAA-1. Explore the pages of the interesting, new, free catalog, waiting for you. Try any and every make of instrument, but buy none until you have seen the "SUPREME" 1933 product—"Supreme by Comparison."

SUPREME INSTRUMENTS CORPORATION,
444 Supreme Bldg., Greenwood, Miss.
Send me, free of cost or obligation, the 1933 SUPREME SERVICE catalog, now ready.

Name _____
Address _____
City _____ State _____
Jobber's Name _____
Address _____

"Supreme" Distributors

MICHIGAN
Lansing—N. L. Offenbauer
MINNESOTA
Minneapolis—Jalisco Manufacturing Co.
Winne Sales Company
MISSOURI
Kansas City—Sterling Radio Company, Inc.
St. Louis—Van-Ashe Radio Company
Walter-Ashe Radio Co.
NEW HAMPSHIRE
Manchester—Radio Service Laboratory
NEW YORK
New York City—Sun Radio Company
Wholesale Radio Service
Schenectady—Maurice Schwartz & Son
NORTH CAROLINA
Zebulon—W. B. Bunn & Company
OHIO
Cincinnati—M. W. Fantle Co.
Cleveland—The M & M Company
OKLAHOMA
Tulsa—Oklahoma Radio Manufacturing Co.
OREGON
Portland—Wedel Company, Inc.
PENNSYLVANIA
Philadelphia—M & H Sporting Goods Co.
TENNESSEE
Gallatin—J. A. Sloan Company
Memphis—Orgill Brothers & Co.
TEXAS
Austin—Walter Tips Company
San Antonio—Southern Equipment Company
WASHINGTON
Seattle—Harper-Meggee Company, Inc.
Seattle Radio Supply Company
Wedel Company
Spokane—Spokane Radio Company
WEST VIRGINIA
Charleston—Bond-Rider-Jackson Company
WISCONSIN
Milwaukee—Radio Parts Company
Sheboygan—J. J. Koepsell Company

Tell them you saw it in RADIO



"EXTRA"

THERE ARE THREE THINGS THAT EVERY
RADIO MERCHANT WANTS TO KNOW ...

- 1—What to Sell and How to Sell It**
- 2—Where to Buy It and What It Costs**
- 3—How to Service and Repair It**

NO RADIO magazine has adequately given this information under one cover, every month. Consequently, the publishers of "RADIO", under a new plan of business reorganization, announce a newer and greater "RADIO", containing all of this information, every month, commencing with the next issue.

A staff of highly specialized writers has been engaged to prepare this material for publication. In short, you will read the writings of men actually engaged in the various branches of the industry and not to be asked to accept the writings of swivel chair editors who tell you what they please.

"RADIO" will be greatly enlarged in size . . . will be printed on very substantial paper . . . will be illustrated with working sketches and charts . . . will contain the following vital information each month . . .

- SALES AND MERCHANDISING SECTION . . .**
- SERVICE AND REPAIR SHOP SECTION . . .**
- BUYER'S GUIDE SECTION, SHOWING WHERE ALL THINGS CAN BE BOUGHT AND WHAT THEY COST**
- FOREIGN TRADE SECTION**
- EIGHT PAGES OF "THE RADIO NOTEBOOK" . . .**
- QUESTION AND ANSWER DEPARTMENT . . .**

And some other new departments of an altogether new and different nature.

• • •

The announcement of these new plans comes at this time because of the marked upturn in business. Be on the look-out for your next issue of "RADIO." Then let us hear from you and tell us what else we should do to help make "RADIO" the most useful and practical publication in the field.

RADIOTORIAL COMMENT

BY THE EDITOR

NEXT month "RADIO" will return to its normal size. Business conditions did not warrant the publication of a large magazine during the summer months. A number of new advertising contracts and a pronounced improvement in subscription revenue make possible a return to normal. In the next issue of "RADIO" you will find some interesting new departmental features. The make-up of the magazine will be changed in its entirety and a service department will be added because so many have requested a resumption of this service. There will be a Buyer's Guide, showing where almost everything in radio can be purchased . . . and what it costs; there will be illustrations, prices and specifications of the new things which are to be announced each month; there will be a pictorial section showing how to dress-up your sales windows; there will be a trouble-shooter's department for those dealers who do their own repair work; there will be a number of feature articles written for us by sales executives in the important radio plants. In these articles you will find a wealth of information on present-day selling needs. The trend of "RADIO" will be tuned to the new 1932 mode of merchandising.

The publishers extend thanks to the many who have subscribed in recent months. No effort of any kind was made to secure these new subscriptions. No premiums were offered. Particularly do we wish to thank those many businessmen in foreign countries who have each sent us \$3.00 for a one-year subscription to "RADIO". One large Australian firm has ordered ten copies per month. Just recently we received subscriptions from the West Indies, France, Germany, Japan, China, Holland, Philippine Islands, Belgium, Spain and Portugal. The business tide is turning, slowly but surely. And with it comes new business for this magazine . . . thanks to you.

JOHAN JONES was a repair man six years ago. He made a good living from the sale of small parts and from the dozens of odd jobs which drifted into his little shop around the corner. Other John Joneses collected repair jobs from dealers who knew nothing about the "innards" of a radio set. From the experiences which John Jones gained from repairing old style radio sets he later found himself much in demand in the manufacturing plant or behind the jobber's repair bench as foreman of the shop. Wasn't it these very men—these John Joneses—who helped build the radio industry into the giant of a few years ago? Indeed, they were the men who contributed much to the rapid advancement of the art. They made good money in boom times . . . even as you or I. They spent it all, and a little bit more . . . even as you or I. Now all that remains of the John Jones wealth is his wealth of experience. Falling back upon it, he puts it to work. Factories working with fewer men. Fewer stores selling radios. Fewer people buying radios. BUT more repair men needed. NOW! Why? Simply because the masses, hard hit, are not buying as many radios as they used to buy. Simply because a few million of the army of part-time workers can still afford to have the old radio repaired, can not afford a new set, in spite of present-day low prices. This volume of repair work has put many a man back to work . . . not behind the bench of a dealer's workshop but behind his *own* work bench. In short, repair men are going it on their own. Opening up little shops here, there and everywhere. Tired of moaning about the depression and realizing that they know enough about radio to make a good living at it.

Thirty-three new repair shops opened their doors in four weeks in one Western city. More coming. And every last man knows his business . . . knows more about repairing radios

than he ever knew before. There's many a man in your neighborhood who will spend a few dollars for an overhaul job, for a new set of tubes, for a better speaker or for a set of filter condensers for his old set. You must remember . . . thousands of \$400 to \$1,000 radio sets were sold when money came easy. People just don't like to give up those gorgeous pieces of furniture. Ridiculous to try to trade them down to a cheap little set and take the old \$1,000 masterpiece in trade for a \$10 allowance, or less.

Make the rounds of the neighborhood. Circularize your district. Tell the folks that you can put the old radio in tip-top shape for not many dollars. Tell them you can make it sound like a modern set. Many and many a service man with a little shop of his own is doing just that. None of them are getting rich. But most of them are making a comfortable living and have long ago forgotten that there was a depression.

One of these men came into our offices the other day. He opened for business about three months ago. The only capital he had was a reputation for honesty and ability. His only credentials were his fists, which he pounded on the table and determined to sell his knowledge as an expert radio repair man. He pays \$20 rent for his shop. Has a fine location, too . . . right next to the corner in a thriving residential district. You can rent small shops . . . small stores for almost nothing these days. Get into one of them . . . then use your head and your hands. Go to work.

This particular fellow who opened his little shop a few months ago soon found it necessary to take larger space. He has rented a store with a shop in the rear. And in the rear of the shop is the place where he lives, comfortably. His wife keeps the place in tip-top shape, handles the counter sales when he is out on call. They don't owe a dime to a soul. Had to put on an extra man a few weeks ago. Working nights to catch up with the many repair jobs which have come into the store. Selling about 100 new tubes a week. Getting these tubes on consignment. Selling PLENTY of low priced sets to people who were without a set while the old-timer was being repaired.

All this from a little shop and a little store. Low overhead. Most of his business comes from the neighborhood. Doesn't need a fleet of trucks to cover the town. Bought himself a good low-priced used car. Folks, that's one way to make good in this radio business. They used to pay you for what *you* knew about radio. Instead of wasting your good time looking for work . . . trying to get a job from someone who is doing most of the work himself . . .

why not get into business for yourself . . . just like thousands of wise radio men are doing? Don't wait till tomorrow. Look for a location today. If your brain is still functioning, if you are not afraid to work, if you are willing to begin at the beginning again . . . go it on our own. Open that little shop. Drum up your business. Many a landlord will let you try it out for a month or two at very low cost, or less. It's a good way to put yourself into a business of your own.

MORE REPETITION

A FEW years ago some manufacturers tried to merchandise the now much wanted "chest" model sets. They did not sell. Today these chest models are among the best sellers. Nobody has given us a satisfactory answer as to the reason why. The popularity of the chest model is undoubtedly due to the want for something different . . . "something that looks like what it isn't." But this much is certain . . . the conventional cathedral type of midget seems to be doomed. Best of all is the news that the chest model is bringing \$39.50 sales more readily than the cathedral type of midget which sells for half, and less. Perhaps it's because the old style midget, no matter what it cost, looks so much like the \$8.00 midgets that you can't tell an \$8 set from a \$39.50 set. Manufacturers report good business on chest models. Some are making them exclusively. Let us hope and pray that this new idea will be one means to end the disastrous merchandising methods of those who half-wrecked the industry by flooding the market with \$8 worth of junk and offering it for sale as MERCHANDISE.

TELEVISION?

WE WERE roundly scored for telling you, long ago, that television by means of the scanning disc is as obsolete as the crystal detector of radio. Just a few weeks ago one enterprising new television manufacturing concern in New York, using the scanning disc principle, found itself in the bankruptcy courts. Commercial television in the U. S. will not use the scanning disc. No further "leaks" have reached us on recent cathode ray television developments. There's more secrecy in the television laboratories of Philadelphia than in secret service department of the government. But we have learned that the actual distribution of a small number of factory-built sets for experimental purposes will quietly begin early in 1933. Those who have "it" in television deserve the admiration of the industry for keeping mum until the time is ripe to SELL the merchandise. Not

enough people can, at this time, afford to buy a good television set to warrant the tremendous outlay on the part of the manufacturers to tool-up and gamble on a sales volume sufficient to guarantee a return on the financial investment. Manufacturers are not sweetening the pot these days.

40,000 STRONG

GOING UP! We had 40,000 radio dealers in business some years ago. And about 8,000 active amateurs. Now we have 40,000 active amateurs and about 8,000 active dealers. The radio inspectors in all districts are flooded with applications for amateur station permits. Let us advise you, again, that amateur radio is booming more than it ever boomed before. Put your idle hours to work in building up an amateur trade in your city. It's a better side-line than many of those far-fetched propositions which others are anxious to sign you up for.

UNCLE SAM TURNS SCOTCH

FROM the United States Government Printing Office at Washington, D. C., comes official word that the Commercial and Government Radio List and the Amateur Radio List for the year 1932 will not be published. Recent legislation curtailing Government expenditures is given as the reason for the discontinuance of the publication of this valuable booklet. It is suggested here that the RMA and other radio organizations take immediate action to bring about a resumption of the publication of this important work. The modest charge of 15c per copy previously imposed could well be raised to one dollar. Even at this price many thousands of copies of the book will be sold. Or, some action should be taken to have the Government make available the latest list so that some independent publisher can get it out in its usual form and offer it for sale. There's hardly a manufacturer, jobber, mail order house or any dyed-in-the-wool radio enthusiast who can afford to be without this annual list.

Communications from our readers are asked for. These will be sent to Washington with our suggestions as to some means which should immediately be found to make available the public use of the station lists for 1932.

THE RISING TIDE

UNMISTAKABLE signs of improved business are shown in the report from a large household goods dealer who has a store on the principal street in San Francisco. The radio department of this store occupies a

space of about nine square feet. Cooped up in this little space stand two men; old-timers in the selling of radios and super-salesmen-deluxe. These two men, with the help of some constructive newspaper advertising, have sold more than THREE HUNDRED radio sets in just thirty days. That's just about ten times as many sets as were sold in a similar period in the preceding month. There are two models... one retailing at \$29.50 and another at \$39.50. The latter is the chest model, the former the conventional type of small table model with combination long-short wave feature. The newspaper advertising features the usual \$1.00 down payment plan. Seventy-five cents per week is the regular payment asked.

The town is flooded with \$8.00 and \$9.00 midgets but there isn't a dealer in town who is selling half as many of the dirt-cheap sets as this dealer who is pushing and selling the higher priced line. Each salesman has averaged five sales per day for the past thirty days. NOT ONE MAN OR WOMAN HAS DEFAULTED THE PAYMENT OF 75 CENTS PER WEEK. The credit department, of course, is wide-awake. Those whose credit is doubtful are asked to either make a \$5.00 down payment or go elsewhere for their radio sets. Nine thousand dollars worth of radio sets sold in one month is not bad business in these days. Only a few months ago not more than a dozen of these sets were sold in a month by the same store.

GOOD NEWS

From Chicago comes the news that Clarion has added 450 workers to the payroll... that the daily output of receiving sets has been stepped up to one thousand per day... that thousands of back-orders are on the books and that both domestic and foreign sales have shown a surprising gain.

FROM CINCINNATI

The big Crosley radio plant is operating on a vastly improved schedule and sales are 'way up. Powel Crosley, Jr., President, has just released the news of the new Crosley TEMPERATOR, a thermostatically controlled heater for winter and a high speed fan for summer, both combined in one and retailing for less than is ordinarily paid for a good heater alone.

ZANEY COMES BACK

Sol Zaney, the man who wrote, placed and paid for the first national advertisement for a line of midget radio sets, is in business again in Chicago, making a small chest model re- and confining the sale of it to the Mid-West.

NEWS OF THE MONTH

Philco Holds Service Schools Throughout the World in Effort to Improve Radio Repair and Maintenance

TUESDAY, August 16, was Philco Service School Day in a hundred and fifty cities of the United States and Canada as well as in the capital cities of every country in the world enjoying radio broadcasting. It was the first time in the history of the industry that a major manufacturer had thrown open his doors and extended a general invitation including even the independent repair men, to attend the nearest session of the school and learn from factory experts how best to repair and maintain receiving sets.

In taking the independent repair men into its confidence, Philco shattered another precedent and won a tremendous good will from these men who have been so consistently held aloof. Their appreciation of the invitation and the value they placed upon the contact offered were evidenced by repair men who drove in some instances, two hundred miles to attend the meeting. In explanation of this radical change in policy, Robert F. Herr, Service Engineer, said:

"The purpose of the School was to acquaint all service men with the new Philco line. We opened the School to all Philco and to all independent radio service men. We consider one of the most important things the distributor's service manager has to accomplish at the present time is getting acquainted with all the independent service men in his territory. A large portion of the Philco service work is now being done by these men, and they are becoming an increasingly important factor each year. They buy parts, and tubes, and they exert a strong influence on the sale of new sets. The importance of having these men friendly to Philco is obvious.

"We want Philco Radios now in operation in the homes to be equipped with Philco parts exclusively. Philco wants the good-will of the service man—whether he works for a Philco dealer, or not. These men are in constant touch with the customer and their recommendations are taken more seriously than those of many salesmen. Last, we want to sell Philco parts. The gyps have built up a thriving business in radio parts throughout the country. There is no reason why this business cannot be had by Philco, selling a legitimate and recognized product at prices equal to or lower than are charged for the inferior quality of imitation parts."

Steinle Reports Increased Sales Activities

WITH normal business returning as a result of the early cold snap, the increase in Triad orders has made it necessary for the Company to appoint new sales representatives in some of the territories heretofore covered by representatives in rather remote points.

Harry Steinle, the Triad Sales Manager, has just returned from an extensive trip throughout the country and announces the appointment as factory representative, of Frederick F. Palmer of Minneapolis, Minn., who will take care of the sales in Minnesota and the Dakotas, and Thomas S. Orr of Denver, Colo., who is to cover the states of Utah and Colorado.

Both of these gentlemen are "old timers" in the Radio Field and the trade can look forward to prompt and courteous attention to their requirements.

Triad Now Guarantees Certified Tubes

After a National Survey made by H. H. Steinle, Vice President and General Sales Manager, Company Adopts Very Liberal Policy.

H. H. Steinle, Vice President and Sales Manager of the Triad Manufacturing Company

of Pawtucket, R. I., has just returned from a trip which carried him to most of the important cities between New York and San Francisco, Montreal and New Orleans.

He reports a very satisfactory increase in Triad sales and says that he is very much impressed by the manner in which service men and dealers are taking to the Triad Certified Sales Plan.

As a matter of fact, of the thousands of Certified Tubes which have been sold, he reports that the Company has not had a single tube returned for replacement for any reason. The success the Company has been having with these tubes has, according to Mr. Steinle's statement, led to the adoption of an entirely new sales policy. Certified Tubes are now sold on the basis of a six months guarantee. This guarantee enables the consumer to secure immediate and complete replacement directly from the factory in the event that a Certified Tube does not come up to expectations, or fails to perform satisfactorily for any reason.

Haugh Appoints Three Assistant Sales Managers for Echophone Radio

THREE assistant sales managers, each of whom has had more than ten years successful sales experience in radio, have been appointed by Arthur T. Haugh, president and general manager of Echophone Radio, Waukegan, Ill.

They are: Jim Kelley, Fred Will and Don Pieri.

Mr. Kelley was formerly District Sales Manager for Atwater Kent Mfg. Co., Philadelphia. This was his second radio connection, which began after leaving the old Federal Radio Company, Buffalo, in the early days of radio.

Fred Will has been connected with Echophone as a salesman, and like Don Pieri, has been associated with Mr. Haugh in previous connections. Mr. Will will supervise sales in the East; Mr. Kelley the Central West, and Mr. Pieri in the West.

Dynatropes Operate Ediphones & Dictaphones in Automobiles & Boats From 6 Volt Battery

THE busy executive field engineer, feature writer, scenario writer, and high pressure traveling executive, have a new convenience available in an automobile or boat equipped with this sensational new converter. There is a trite saying that "Time is Money" and if this be so the Dynatropes proves an exceptional money maker for those of limited time in addition to adding more productive hours. A dictating machine may not be the best companion for a week-end cruise, a trip to the ranch or cabin but it does make possible the use of more hours for pleasure to those who use them. Correspondence, reports, and routine matters can be handled most efficiently as both companies provide cartons for mailing the dictated cylinders to the home office for transcribing. The "big boss" can actually tell how his representative is feeling by the inflection and sound of his voice at the time of dictating by simply slipping the cylinder on his office machine and running it through with the reproducer connection, afterwards turning it over to a secretary for transcribing in cold type. Businesses requiring detailed reports and abundance of information can obtain greater efficiency as their representatives can step into their cars, dictating a full report while all matters are fresh in their minds instead of waiting until the end of the day or the end of the trip when many minor but important details will have been forgotten.

Mining, construction, and oil engineers can handle more detail and add to their efficiency with a dictating machine as a traveling companion in wide open spaces.

The watt rating of dictating machines is 25 and less so that the current drain on the battery is extremely light.

Arcturus Export Sales for First Six Months 70% Ahead of Last Year

AN INDICATION of the great popularity of American-made radio tubes is evidenced in figures released by Walter A. Coogan, export manager of the Arcturus Radio Tube Company, Newark, N. J.

"For the first six months of this year," says Mr. Coogan, export manager, "our export sales have increased over 70% in comparison to the first six months of 1931. This is gratifying when it is considered that our export sales for 1931 showed an 87% increase over the year of 1930.

"With more set manufacturers in the United States, as well as a multitude of foreign set manufacturers, using Arcturus Tubes as initial equipment than any other tube made, our distribution extends into 76 foreign countries. I know of no other tube that has an equal world-wide distribution. In many countries Arcturus leads from the standpoint of volume sales.

"This world-wide distribution and acceptance is reflected in the fact that more and more set manufacturers in the United States are equipping their receivers with Arcturus Tubes as initial equipment. There is hardly a foreign radio market of any consequence where Arcturus Tubes and service cannot be obtained."

THE merchandising of radio tubes was the main feature of a meeting held jointly by the RCA-Radiotron Company, Inc., and the Chicago Section of the Institute of Radio Service Men at the Hotel Sherman in Chicago on the evening of September 19. More than seven hundred service men and dealers attended the meeting.

Preliminary talks were given by E. W. Butler, commercial engineer for RCA-Radiotron Company, and Harold L. Oleson, sales engineer for Weston Electrical Instrument Corporation, on the technical aspects of new tubes and test apparatus for merchandising not only the new tubes but those in sets of past seasons.

T. F. Joyce, sales promotion manager of the RCA-Radiotron Company, spoke for more than an hour. He outlined the important position which the service profession holds in the industry and in the tube merchandising programs, because of the direct contact with the users of radio devices. He introduced a series of record forms that have been developed in the sales department of his company for the purpose of aiding the service men to maintain a closer relationship with their clients and with the apparatus owned by them.

The necessity for developing the radio service profession was emphasized and especial stress was laid upon the importance of reducing the number of men engaged in radio servicing. It is significant that Mr. Joyce should lay emphasis upon one of the principal points in the program of the Institute of Radio Service Men, and that he should show graphically that there is no place in the radio business for the 100,000 or more persons who now classify themselves as radio service men. Whereas the Institute has contended that not more than 30,000 men are required to satisfy the need, the speaker went even further and placed the number at 20,000 for the entire United States.

FROM the laboratories of the RCA Victor Company at Camden, comes word of the development of a tiny two-way radio telephone and telegraph receiver and transmitter, in one unit, for emergency and mobile communications over short distances.

Weighing only 22 pounds together with a battery unit, and taking up scarcely as much room together as two moderate sized "B" batteries, these remarkable little units, which have been named Transceivers, are expected to find an immediate application wherever other means of communications are impracticable or uncertain.

The new RCA Victor Transceivers will find a ready use in the police work of large cities where mobility and adaptability are especially important. They can easily be placed in police emergency wagons for use in handling large crowds or answering riot calls. By this new means, police reconnoitering a disorderly mob, or a building harboring desperate criminals, could maintain continuous contact with a central base of operations from which instructions can be issued to meet changing conditions.

In fire fighting, the new Transceivers are especially useful for communication between firemen in the interior of a burning structure and the officers directing operations outside. It is often necessary to send firemen into a burning building to warn their comrades to leave when the walls show dangerous signs of crumbling. Because of their negligible weight and size, the Transceivers can easily be strapped to a man's back without hampering his movements.

The new units may be called on to play another interesting role in the subway transportation systems. In subway disasters, similar to the kind that have occurred in the last few years, it is imperative that workers in the tunnels be in communication with surface rescuing parties. In the past, it has been necessary to run long telephone wires through the streets and drop them into the tunnel, with a great loss of valuable time. The Transceivers would be a solution to this problem.

Recently, the New Jersey Forestry Service acquired a number of the new Transceivers as of invaluable aid in spotting and reporting forest fires. Very instructive tests have also been made with communication between the front and rear of long freight trains. It was found that substantial savings in time can be effected by the little Transceivers in this way. The U. S. Army too, has shown great interest in the RCA Victor Transceivers and has made numerous successful experiments with them in Army manoeuvres. Transceivers have even been placed in saddle bags, with a cavalry officer holding the antenna like the long lance of the crusaders.

The operation of the Transceivers is simple. The change-overs from "transmit," "receive" and "telegraph" positions are accomplished with a single change-over key switch. The circuit of the Transceivers is of the super regenerative type which has been found to be most efficient below 10 meters. The tubes, which include three RCA-230s and an RCA-231, have interchangeable functions in the circuit. In the transmit position, two RCA-230s act as oscillators in a push-pull circuit with an RCA-231 as modulator and an RCA-230 as audio amplifier. In the receive position, the two -230 tubes act as oscillating super regenerative detectors and the other -230 acts as the first audio amplifier, with the -231 as an output amplifier. For code transmission, the -230 speech amplifier oscillates at an audio frequency of approximately 1000 cycles which is keyed with a telegraph key.

The antenna is usually of the di-pole type, each section being approximately $\frac{1}{4}$ wavelength long, which for five meter transmission is about 40 inches. For plane, auto and other mobile use, it may be desirable to utilize a zeppelin antenna with a transmission line. The units have a range up to three miles, depending on the nature of

the surrounding terrain, although it is possible to increase this range by raising the transmitter to a greater height above the ground.

The extremely low wavelength and low power of the transmitter insure against any interference with existing radio services, all of which, with the exception of experimental television broadcasting, operate at higher wavelengths and much greater power.

Microphones Speed Up Service and Save Space in New York Soda Store

BECAUSE of a modern invention, the old-fashioned "soda-jerker" is apparently doomed to disappear from public view. He will be relegated to the basement, merely to concoct sodas and sundaes, while his place will be taken behind the counter by an attractive waitress, who will repeat the customers order into a convenient microphone.

This is not an idle dream, but is the description of an actual installation in the Loft candy store at 251 West 42nd Street, New York City. In this store, two long counters occupy the center of the store. Numerous pretty waitresses stand behind the counters. There are no soda fountains, drink mixers, ice-cream refrigerators in evidence. These are all located far below in the basement. Instead, there is a shining chrome-plated microphone in front of each maiden. As the customer gives his order, the girl presses a switch and repeats it into the "mike." It is heard instantaneously by the soda clerk in the basement. He fills the order immediately, sending it up to the waitress by means of a high-speed dumbwaiter directly alongside of his fountain.

The effect of this is very pleasing to the customer. The service is remarkably rapid and the customer deals only with the cool, neatly-attired young woman behind the counter. From the standpoint of the store operator, the microphone installation is also a decided success. For one thing, it saves valuable space, since the removal of the bulky fountains and refrigerators leaves a great deal more room for customers and for counter displays. Furthermore, the service is speeded up so that more customers like this modern innovation and show their approval by increased patronage.

Technically, the installation is quite simple. Six Universal model "X" two-button microphones are used. These are spaced at equal intervals along the counters so that a microphone is available within convenient reach of each waitress. The microphones are mounted on banquet stands, fastened to the counters. The stands may be raised or lowered.

In the basement, there are three audio amplifiers, each feeding into a separate Wright-DeCoster dynamic reproducer. The microphones are connected to each amplifier input. The amplifiers employ a 124 screen grid tube in the first stage and a 150 power tube in the output stage. Each amplifier and speaker is contained within a metal case and the three metal cases are fastened to posts at suitable intervals along the soda fountain.

Each amplifier is permanently connected to a 110-volt outlet alongside of it, but the "on-off" switch is located on the floor above; so that the current is consumed only when an order is being transmitted over the sound system.

NOTE: Photographs of the above installation are available and may be obtained on request from the Allied Engineering Institute, Suite 541, 98 Park Place, New York, N. Y.

Postoffice Buys 500 Telechrons

CONTRACTS for synchronous electric clocks for two Michigan postoffices have been awarded the Warren Telechron Company, of Ashland, Mass., through the Gorenflo Company, of Detroit, Telechron distributor. Five hundred Telechron clocks will be installed in the postoffice at Detroit and thirty at Jackson.

In each building the clocks will be operated

by alternating current on a separate circuit which, in event of power interruption, will be switched to a reserve power supply in the building, thus operating continuously.

Skinner of Philco Favors Lengthy Programs

"We were able recently to organize in less than a week's time, a program of spot broadcasts using a hundred and twenty-three stations every night for five consecutive nights to promote a nation-wide word building contest. Thus we used six hundred and fifteen broadcast periods in five days which the broadcasting companies tell us is a record.

"We always have used spot broadcasts, or at least our dealers have, with more or less constancy, but these again have been governed by the advice of our local agencies. During the past year, our principal broadcasting has been the concerts of the Philadelphia Orchestra under direction of Leopold Stokowski using all stations in a coast to coast system and supplementary shortwave transmission to carry these concerts to foreign countries.

"Our object in selecting Stokowski and the Philadelphia Orchestra was because we believed it advisable, almost our duty to broadcasting and to radio, to give the music loving radio owners of the world an opportunity to enjoy often, the world's finest music under direction of America's greatest musical director. These were not studio broadcasts but actual full length concert broadcasts direct from the Academy of Music while the distinguished and colorful audience was present.

"With these broadcasts, we held the air for an hour and three-quarters, (first to avoid cutting the concerts to fit a predetermined program period; (second) to impress upon the public as well as upon other broadcasters, the quality of program that today's broadcasting and receiving facilities make possible; and (third) to prove our contention that it is not good business to originate too large a percentage of programs in the studios nor to have the listening hours cut up into so many short periods. We believe that a program must be of a quality to attract an audience and to hold an audience, and we think there should be enough of it to satisfy an audience. Only by these qualities do we believe that a program will impress its sponsorship enduringly upon a listening audience.

"We do not infer by this that all programs should run for an hour and three-quarters but we are mindful of the fact that vaudeville lost its hold on the public. We think the vaudeville rapidity of act presentation should be avoided in radio because listeners usually hope to settle down, relaxed, for a considerable period—perhaps an entire evening. When changes from one program to another are so frequent as to get the listener all jittery, radio, it seems to us, is being abused instead of used."

—JAMES M. SKINNER,
President of Philco.

THE Silver-Marshall Chicago factory worked Labor Day and Sundays producing radios for their big city accounts. Undoubtedly part of the reason is the return of Howard W. Sams, general sales manager, who spent the month of August at his summer home, "Sams Hill" at Channel Lake.

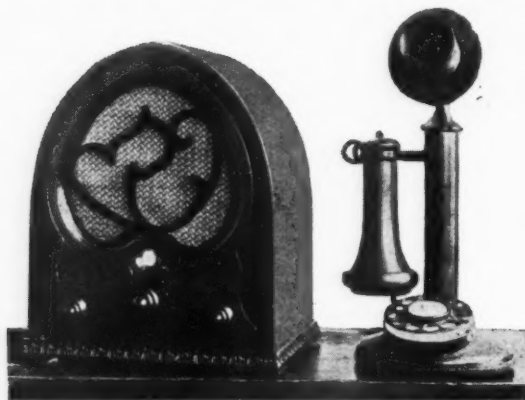
Janette Electric Plants for Sound Trucks

THE Janette Manufacturing Company of 887 West Monroe Street, Chicago, announce a line of gas-engine driven generators for use with sound truck amplifiers. These units consist of a single cylinder, 4 cycle, air-cooled gasoline engine connected to a generator delivering 110 volt, 60 cycle A. C. Entire unit is mounted on a cast iron base and when ordered for sound truck service comes equipped with filter and shielding. Available in 5 sizes, developing 300, 500, 750, 1250 and 1800 watts respectively.

Paramount Radios Sell Themselves

SALES RECORDS BROKEN EVERYWHERE

Paramount Dealers Are Making Money



PARAMOUNT "KEWPIE"

Retail Price
\$19.95

Volume Production Makes This Price Possible. We are now shipping the Kewpie Radio to most all points of the world and dealers everywhere report exceptional volume of sales

1933 FEATURES

Meets all competition—price, eye value, performance that will create a large volume of sales. Uses the new type tubes, full dynamic speaker, illuminated dial, beautiful cabinet. Tubes used — 1 Type 57-58-47-80.

— also —



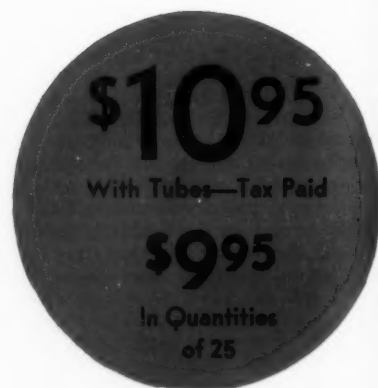
The World's Finest Small Radio

PARAMOUNT'S PEE-WEE

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Tone Control

BETTER quality, larger transformer, more parts, different circuit, better speaker, best tubes, tone control, construction and refinements that make a radio give dependable long service. We have reports of distance up to 1500 miles on this powerful set.



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New Products...

The Preceptor Tube Tester

By F. W. KOLKMANN



View of Preceptor Panel showing arrangement of Glow Ports. Top row are the Standard ports and below are Test ports which give the actual performance characteristics of the tube being tested.

THE Preceptor Tube Tester is a development in the art of analyzing the characteristics of vacuum tubes and accurately checking their efficiency based on years of experience in contacting the service man and the purchaser of tubes with a consequent thorough appreciation of the problems of both. Its development was begun with the object of producing an instrument that would perform in an efficient manner and yet be so simple in operation that the layman could follow intelligently each step in testing a tube.

To begin with, a tube tester should not only accurately test tubes but it should do so in a manner that the layman can understand and have no doubt left in his mind as to the condition of the tube being tested. It must be remembered that the average layman knows nothing of the working parts of a radio set yet he is interested in knowing what went wrong with his own particular receiver when it stops operating. Most radio troubles are minor ones and it is generally conceded that the vast majority of service calls are due to tube failure. The set manufacturer of today builds his product to such rigid specifications and uses such precise engineering methods that failures of the major parts of a receiver are few. Consequently, it was felt that a real need existed for a means of remedying minor troubles such as tube failure and the PRECEPTOR was developed.

This instrument brings home to the layman, the importance of good tubes and does so in a manner that is extremely convincing. In other words, "it speaks his language." There are no meters on the PRECEPTOR. The layman doesn't understand meter readings so an entirely new principle was evolved that eliminates all doubt and guess work. Testing is made possible by using the current flow in all elements through the omission of the tube being tested, transforming this into light of varying intensity and comparing the result with a standard which is calibrated to a perfect tube. A set of standards corresponding to the various types of tubes to

be tested is provided and a sliding contact switch can be set at will to give the required standard. The human eye is keenly attuned to light intensities and one glance at the PRECEPTOR shows even the most inexpert, the value of this method of testing. Besides, there is no mystery about it, and understanding how it works the layman takes a keen interest in it and in actual use, it has been frequently found that he will insist on replacing tubes that are usable because in testing they did not quite come up to the standard on the PRECEPTOR with which they compared.

While it is amusing and even fascinating to the layman to watch the PRECEPTOR test tubes it is also educational and interesting as he can see at a glance whether or not the tube being tested matches the standard. Admitting then the value to the layman, let us examine the benefit to be derived by the technician.

Up to the present time the technician has been trained to do all his repairing and testing with the assistance of voltmeters, ammeters milli-ammeters and many other type of meters, all of which are important but in testing tubes, are not always the surest method. Let us illustrate. Assume that you have tested a tube and found that the plate current of the tube registers normal on the milli-ammeter yet on the mutual conductance test it registers higher or lower than the manufacturers specifications. Ordinarily there is no way of locating this discrepancy and it is anybody's guess what effect such a tube would have on a radio receiver. To be fair, we will admit that equipment does exist which will analyze a fault as above described but the cost of such equipment is prohibitive. The PRECEPTOR will accomplish this result and many others with certainty and at a very low initial cost.

One of the most difficult things to locate in a tube is the presence of high resistance connections or loose elements. Experience shows that a meter will frequently pass up this defect as the friction in the moving parts of a meter will not permit it to respond readily whereas the system used in the PRECEPTOR will indicate both loose elements or high resistance without fail.

Of course it is not intended to convey the idea that meters are useless. They have

a very distinct place in the scheme of things. In fact, provision is made in the PRECEPTOR for the use of meters if desired so that the technician can combine the PRECEPTOR system with the more orthodox method and obtain the benefits of both. However, with the PRECEPTOR, the most exhaustive tests may be made without any assistance from meters, a distinct advantage.

A DESCRIPTION OF THE PRECEPTOR AND WHAT IT WILL DO

The PRECEPTOR is available in two types, a counter model and a portable instrument. The counter model is about seventeen inches high and about seventeen inches deep. The upright panel has a space reserved at the top for the dealer to place his own advertisement if he so desires. In the center of this panel is an indentation about eight inches square and two inches deep to accommodate the glow parts. On the right is a red part for the noisy tube test. On the left is a green part for the filament test. The cabinet is finished in walnut, beautifully hand rubbed.

The portable model is about ten inches wide, thirteen inches long and five inches deep and is also finished in hand rubbed walnut. The glow parts, sockets and switches are mounted on a bakelite panel, machine engraved. The weight of the complete instrument is about ten pounds.

Summarized below are some of the characteristics of the PRECEPTOR:

1. Operation is based on the omission of the tube being tested.
2. Indicates accurately the amplifying quality of the tube.
3. Indicates loose elements (often mistaken for static).
4. Indicates high resistance connections (often the cause of fading).
5. Indicates the slightest trace of gas.
6. Indicates Noisy Tubes.
7. Will indicate any kind of short in a tube without injury to the instrument and without any danger of burning out fuses.

The PRECEPTOR is not new. It has been in constant use for over two years in the service department of one of the world's greatest radio and tube manufacturers and bears the endorsement of many famous radio engineers. It can be relied upon to increase tube sales wherever used.



New Distributors

APPPOINTMENT of the Chapin-Owen Company as Sparton Radio Distributors at Rochester, N. Y., is announced by Harry G. Sparks, vice president of The Sparks-Withington Company, Jackson, Michigan. Members of the new distributor's organization were familiarized with the new Sparton models at a recent meeting, which was addressed by Carl J. Main, factory field representative.

Harry Sparks himself is at present paying a round of visits to the Canadian trade. His plans call for sales conferences with the executives of A Cross and Company, Limited, and the Canadian Fairbanks-Morse Company, Limited, Sparton Radio Distributors at Toronto and Montreal respectively.

Sales Manager E. T. H. Hutchinson is another Sparton executive who is making his home in Pullman cars in preparation for fall business. Recently he addressed the organization of the General Automotive Supply Company, newly appointed distributors at Harrisburg, Pa.

According to Hutchinson, there is much increased activity among Sparton outlets in the Keystone State, and the outlook for the autumn and winter is encouraging. Coincident with their removal to a new home at 1508 Fairmont Avenue, Graber and Duffield, our distributors in Philadelphia, have added to their staff J. Casper, who has been active in the merchandising of our radio products for the past several years. Mr. Casper should prove a real asset to this distributor in continuing the good work that has distinguished their association with us up to the present time.

"Another development that gives me a great deal of satisfaction is Sparton's continued progress in the field of police radio. After careful comparative tests, the city of Dayton, Ohio, recently purchased its initial police radio equipment, and it was a one hundred per cent Sparton installation.

"We are proud, indeed, to be able to add Dayton to the roster of principal cities having police scout cars equipped with Sparton receivers exclusively. Patrol fleets in many other cities are partially equipped with our sets, and the reports of performance are extremely gratifying."

Executives of the refrigeration division of The Sparks-Withington Company are also active in the field, at the present time, according to Earl Brower, refrigeration sales manager. Said Mr. Brower, "Harley Wall reports an unusually successful recent meeting with the sales organization and dealers of the Carl Hartman Company, distributors of Sparton Refrigerators in Rochester, N. Y. This aggressive group of experienced merchandisers shares our confidence in the future of electric refrigeration, and they are perfecting plans that will be a big help in getting their share of the business in the Rochester territory."

Philip Valk, Fada Export Manager, Sails for Europe

Mr. Philip Valk, export manager for Fada Radio and Electric Corporation, Long Island European screen grid tubes in that the plate City, New York, is considered a seasoned world traveler.

In sailing on the S. S. Leviathan he is making his twenty-fourth trip across the Atlantic.

Mr. Valk states that in the past year, despite general economic conditions throughout the world, the export sales of Fada Radio have been extremely satisfactory and in a number of countries have shown considerable increase.

Mr. Valk is no "swivel chair" export manager, but spends a large part of his time each year actively contacting Fada distributors and representatives throughout the world. This trip will take him on a considerable swing around the circuit including France, Belgium, Switzerland, Italy, Spain, Portugal, North Africa and a number of other European countries.

It is extremely pleasing to Mr. Valk to see Fada Radio accepted in foreign countries in a greater degree each year on the basis of its representing a quality product and carrying a selling price in many instances in excess of comparable equipment manufactured in the countries in which it is sold. Certainly such a condition not only is favorable to Fada Radio but to the general growth of the use of radio throughout the world and the growing recognition of the merit of American-built radio apparatus.

Dr. E. A. Lederer Reports Business Good Abroad

DR. C. A. LEDERER, Research and Development Engineer of the National Union Radio Corporation, returned this week from a two months' trip which took him through the principal European radio manufacturing and development centers. The high spots of his itinerary included London, Berlin, Vienna, Munich and Bremen.

When he docked at New York, Dr. Lederer said—"I have enough data and material with me to keep me working in the laboratory every minute of my time for at least a year." Observers stated that boxes and crates, among Dr. Lederer's luggage seemed to attest to that statement.

Dr. Lederer gave some interesting highlights of the radio tube manufacturing situation abroad. He states that the English situation is at present dominated by G. E. C. and Cossor. Radio business in the British Isles, says Lederer, is booming due he believes in large degree to the high tariff wall which has been established.

The German tube manufacture is controlled by an almost absolute monopoly of Telefunken, which company is the result of pooling the radio interests of Siemens, A. E. G. and Osram. Tube prices in Germany as a consequence are extremely high, tubes of a type corresponding to the American 224 type, selling for about \$4.40.

A relatively few tubes are made in Vienna, due to the limited population in Austria. The principal firms there, however, are Ganz, Schrack, which is believed to now be a Phillips subsidiary and Kremenzecky which is a subsidiary of Tungsram in Ujpest near Budapest.

Dr. Lederer pointed out a peculiarity of lead is brought out on top instead of the control grid leads like American tubes. There is considerable danger in this situation as a person is liable to receive a terrific shock handling these

tubes when the set is in operation and possible short circuits create a considerable fire hazard.

Radio sets of foreign manufacture are small, two, three and four tube outfits which are capable of bringing in only stations located in the immediate vicinity of the receiver. Regeneration is used to a large extent. There is limitless variety of brands as anyone can take out a license to make radio sets. Due to the inadequacy of Continental made sets, those of American manufacture are rapidly increasing in popularity.

Dr. Lederer exhibited to his interviewer many strange looking radio tubes, mysterious compounds and chemicals. He stated that he hoped to work magic with these materials in the National Union laboratories to bring forth some startling developments within the year.

THE Radio Manufacturers Association is in receipt of the following statement from the Treasury Department relative to its ruling on Chassis and Cabinets:

"You are advised that under the law and regulations manufacturers of cabinets and chassis for radio receiving sets cannot sell such articles tax free under exemption certificate. However, where a manufacturer of a complete radio receiving set purchases various taxpaid components for use in the manufacture thereof he may sell the complete set at a specified price and will be permitted to pay tax only on the taxable articles manufactured by him, provided, such records are kept that will show specifically the selling price of the articles manufactured by him."

New Microphone Catalog Ready

Universal Microphone Co., Inglewood, Cal., has issued its 1933 catalog in the form of a 29-page booklet well illustrated with diagrams and blueprints. The firm now enters the fifth year of manufacturing microphones and allied lines.

Through the use of a new country wide distributive system, Universal Microphones (Inglewood, Cal.) will install complete factory stocks in 12 centers of population throughout the country. This will become effective in November and, according to James F. Fouch, president and general manager, the plan will do away with transportation charges so far as it affects the ultimate consumer.

A tiny miniature lapel button microphone has been sent out by Universal Microphone Co., Inglewood, Cal., to all dealers, service men and salesmen who handle their products throughout the country. It is a cleverly designed affair, gold plated.

Call letter name plates will be used as standard equipment hereafter by the Universal Microphone Co., Inglewood, Cal., on all of its mike stand models including floor types, desk and banquet models, table sets and others. The plate will make it possible either to paint or cement call letters. Although broadcasters, p. a. systems, news-reels and net works have used call letters on stands for some time, the practice has not been so general with amateurs, remote installations and others.

New Accessories

THE latest in the lengthening list of attachments and accessories for the popular Sunbeam Electric Mixmaster is just being put out by the Chicago Flexible Shaft Company. This is a knife sharpening attachment which should meet with decided success in homes everywhere, because it is so easy to use and so unfailling in its performance.

It consists of a sharpening stone encased in a housing painted to harmonize with the Mixmaster itself, so that it is good-looking as well as efficient. This housing, incidentally, catches all the grit and dust from the sharpening operation. A guide insures the blade being held in the correct position for scientific sharpening, and provision is made for changing the position of the stone as it wears from use, so that it will always give the desired result.

The Knife Sharpener Attachment for the Mixmaster, which operates from the same power unit as the food chopper, meat grinder and can opener attachments, sells for \$2.00 without the power unit.

MyOwnRadioMidget GETS POLICE CALLS

Dynamic speaker, R.C.A. licensed tubes. Receiving range, 200 to 1000 miles. 175 to 550 meters, very latest.

Send for free circular.

E. WEINERT, Dept. 2
1643 N. Lawndale Ave. Chicago, Ill.

Statement of Ownership, Management and Circulation

Statement of the ownership, management, circulation, etc., required by the Act of Congress of August 24, 1912, of "Radio", published monthly at San Francisco, California, for October 1, 1932. State of California, County of San Francisco, ss. Before me, a Notary Public, in and for the State and county aforesaid, personally appeared H. W. Dickow, who, having been duly sworn according to law, deposes and says that he is the Publisher of the "Radio" and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, to wit: 1. That the names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, Pacific Radio Publishing Co., Pacific Bldg., San Francisco, California; Editor, P. S. Lucas, Berkeley, California; Managing Editor, None; Business Manager, H. W. Dickow, Pacific Bldg., San Francisco, California. 2. That the owners are: Pacific Radio Publishing Co., Pacific Bldg., San Francisco, California; H. W. Dickow, Pacific Bldg., San Francisco, California. 3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: None. 4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him. H. W. Dickow, Publisher. (Seal.) Sworn to and subscribed before me this 26th day of September, 1932. John L. Murphy, Notary Public in and for the City and County of San Francisco, State of California. (My commission expires May 20, 1933.)

BOOK REVIEWS

The New Fourth Edition of Radio Operating Questions and Answers, by Arthur R. Nilson and J. L. Hornung, price \$2.50.

This standard book of review and preparation for all license examinations has been fully revised and enlarged.

Among the changes and additions, the following are outstanding:

Large number of new questions and answers have been added to the chapters on Tube Transmitters and on Radio Laws.

Chapter on Broadcasting Transmitters has been very largely rewritten and new material on the most recent model of Western Electric 1,000-watt broadcast transmitter included.

A complete answer to the very important question of attenuation pad calculations is included.

Chapter on Amateur Station Operation has been entirely rewritten and a new chapter entitled Amateur Radiophone Operation, which gives information and data pertaining to the unlimited amateur telephone operator's license, has been added.

New chapter on Amateur Radio Laws and Regulations has been added.

New chapter covering Aeronautical Radio written largely by R. L. Bibb of the American Airways, Inc. Written out of actual experience; practical and authentic.

Useful operating information and regulations governing the issuance of all classes of radio operator's license examinations, given in the Appendix.

Yaxley Publishes New Volume Control Bulletin

This new bulletin contains the complete new line of Yaxley Rheostats, Potentiometers and Volume Controls and a replacement manual showing the right replacement control for each type set. Illustrations, dimensional drawings, resistance in ohms, carrying capacity in amperes and price are covered for each product.

This bulletin is known as Form S-18 and is published by the Yaxley Manufacturing Co., Indianapolis, Ind.

Yaxley Publishes New Radio Convenience Outlet Bulletin

The most extensive treatise on Radio Convenience Outlets for Radio and Public Address installations in single and multiple gang combinations, with selector switches and volume controls included, has been published by Yaxley Manufacturing Company, Indianapolis, Indiana. This new bulletin shows a wide range of designs from which can be made almost every conceivable combination. The Yaxley portable control used at The Hague Peace Conference and Geneva League of Nations Conference is one of the new features illustrated.

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HOTELS -
530 ROOMS**

Best location in Portland in the hub of the shopping and theater districts and facing port dock. Convenient garage just across the street.

RATES

Single room with bath \$12.50 and up
Double room with bath \$13.50 and up

Concerts twice daily on \$25,000 organ

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AN APARTMENT HOTEL




OPPOSITE AMBASSADOR GARDENS

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Cafe - Room Service
WILSHIRE at KENMORE

THE GAYLORD fulfills with lasting satisfaction the desires of a discriminating clientele; offering two, three and four rooms furnished, one and two baths. Rates from \$100.

In ST. LOUIS



THE AMERICAN HOTEL
275 ROOMS
WITH BATH
\$2.00 up



THE ANNEX
226 ROOMS
WITH BATH
\$1.50 Up

**The AMERICAN HOTEL
MARKET AT SEVENTH**

**The AMERICAN ANNEX
MARKET AT SIXTH**

*Our food has made
our Reputation
COFFEE SHOP OPEN
UNTIL MIDNIGHT*

GUARANTEED Microphone Repairs

Any make or Model—24 hour service. Stretched diaphragm double button repairs \$7.50. Others \$3.00. Single button repairs \$1.50.

Write for 1933 Catalog with diagrams.

Universal Microphone Co., Ltd.
INGLEWOOD, CALIF.

For The RADIO NOTE BOOK



A Monthly departmental feature to help guide you in the proper manner of service of all of the well known types of radio receivers. Each month four or more of these Note-Book pages will be published. Send us your service problems.



PHILCO

REG. U. S. PAT. OFF.

SERVICE PROBLEMS—QUESTIONS AND ANSWERS

By IVYN I. FARWELL, Pacific Coast Service Supervisor

PHILCO radio receivers will be talked about in this space once each month. In next month's issue of "RADIO" PHILCO will discuss Philco Automatic Volume Control, etc.

Adjustment of Shadow Tuning

Philco shadow tuning is one of the greatest aides to correct tuning ever developed so it is important that this device be properly adjusted on each set before being placed in operation. There are no adjustments inside the shadow box, but there are a few simple adjustments of the position of the box and the position of the pilot lamp.

Installation

The shadow tuning box is purposely moved back away from the bezel during shipment so as to avoid breakage. When the set is placed in operation, and after the chassis mounting bolts have been loosened, the two mounting screws at each side of the shadow box should be loosened by means of a short screwdriver, and the box moved forward to the bezel. The position of the box can be adjusted so that the shadow is centered with respect to the bezel opening.

Position Adjustments

In some cases, it may be found that the position or the intensity of the shadow on the screen is not entirely satisfactory because of slight changes during shipment. The necessary re-adjustments can be made in the manner outlined below, first tuning on the radio and removing the type 80 tube.

1. *Shadow too faint.* Move and focus lamp by bending the bracket slightly to obtain a sharp shadow of the smallest possible width exactly in the center of the screen.
2. *Shadow not centered on screen.* Move and focus lamp as described above.
3. *Shadow not sharp on one side.* Pry off the lamp reflector and adjust the lamp position by turning lamp and socket in a clockwise direction until the filament supports are parallel to the back of the shadow tuning box. Ordinary pilot lamps with inverted U shaped filament will not be satisfactory since they do not produce a concentrated light and a sharply defined shadow. The new Philco pilot lamps have a relatively straight filament which gives better light concentration. It may be necessary to make a further adjustment by bending the bracket as described in 1. above.
4. *No light on screen.* Adjust reflector on pilot lamp.
5. *White light between screen and bezel opening.* Loosen shadow tuning box mounting screws, and move box forward against back of bezel. Center shadow properly with respect to bezel opening.

Replace the 80 tube after completing the above adjustments.

Radio Adjustments

After the above adjustments have been made, the shadow tuning box may be checked for operation by tuning in a number of stations. The following suggestions are offered in case of difficulty.

1. *No change in shadow width when tuning in weak signal.* Change first detector and first I.F. tubes in Model 15 and R.F. and I.F. tubes in Models 91 and 23.
2. *Insufficient change in shadow width on all stations.* Look for faulty aerial connection or too small aerial.
3. *Shadow remains at minimum width while dial is turned several divisions.* Compensating condensers out of adjustment, causing set to be broad in tuning; station signal extremely broad.

Questions and Answers

1. Q. Have Philco Radios been designed to eliminate interference from airport weather report stations broadcasting at 175 K.C. and 260 K.C.?
A. Yes. The circuits have been especially designed to filter out this interference which would normally come through on the I.F. amplifier system. Shielding of the set prevents any direct pickup of these signals in the intermediate frequency amplifier circuit, and the special r.f. coil design prevents the signal from coming through the antenna circuit.
2. Q. How can A.C. hum in the model 52 be eliminated when all tubes are known to be good?
A. Some of these models have a hum which can be corrected by reversing the green and white wires (primary of output transformer) at the speaker terminal strip.
4. Q. Does the use of the ballast tube in the new Model 36 Battery Superheterodyne cause a greater current drain from the A battery?
A. No. The purpose of this tube is to supply a constant voltage to the set with no increase in current consumption. The ballast tube functions automatically, delivering the correct operating voltage to the tube sockets at all times throughout the life of the battery.
1. Q. How can shadow tuning be used for silent tuning?
A. Since the shadow tuning is entirely independent of volume, the volume control can be turned to minimum without affecting the sensitivity of the radio or without changing the shadow tuning indicator. When changing from one station to another, the volume control can be turned down to afford silent tuning, and the shadow tuning will indicate the presence of the desired station. The volume control can then be increased to the desired volume level.
2. Q. What is the remedy for a microphone howl when playing records on the Model 23X?
A. The tone arm base is mounted on rubber supports. The screws may be too tight in some cases, thus causing the microphone howl to be set up. The condition can be corrected readily by loosening the tone arm support screws.

Philco Service Bulletins can be had without cost by writing to

PHILCO RADIO & TELEVISION CORPORATION

Philadelphia, Pa., or to the San Francisco Office

Philco would like to hear from every Radio-Trician who is operating an independent Radio service business. It is their desire to contact these service men and supply them with the Philco parts catalog and Philco wiring diagram booklet.

It is hoped that all independent service men and firms who are in accord with this policy will communicate with Philco Radio and Television Corp., 218 Fremont Street, San Francisco, care of Mr. Ivyn I. Farwell, Service Supervisor.

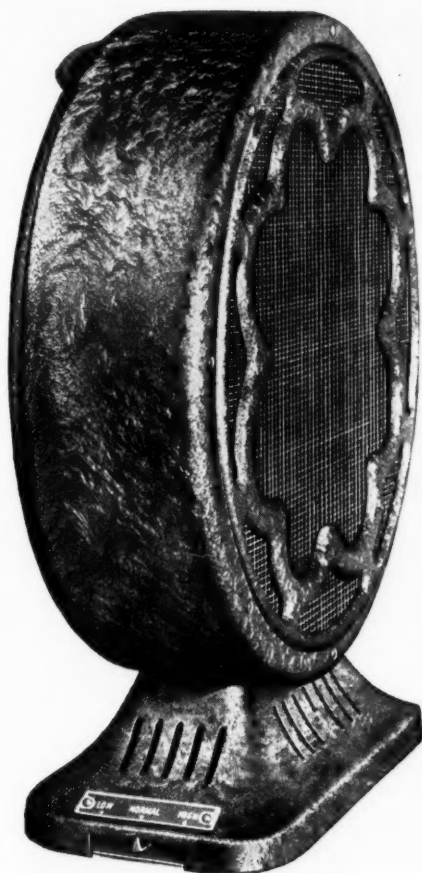
PACIFIC COAST OFFICE:

218 Fremont Street, San Francisco, Cal.

Ivyn I. Farwell
Pacific Coast Service Supervisor

The CROSLEY TEMPERATOR

**A Thermostatically Controlled Heater for Winter
A High Speed Fan for Summer**



AS A HEATER, the Crosley TEMPERATOR functions more effectively than any heater has ever done. In it is incorporated a thermostat which maintains an even temperature. This is particularly desirable when the TEMPERATOR is used in the bathroom to maintain a higher temperature than that of the rest of the house.

Because of its light weight and convenient size, the Crosley TEMPERATOR is readily moved from room to room. While it is not claimed that it alone will supply sufficient heat to warm an entire house, it will aid materially in making comfortable and cozy that room which is otherwise hard to heat. Remember that in a small room or bathroom the TEMPERATOR will add the warmth necessary to complete comfort and maintain the temperature constantly at whatever degree the inbuilt thermostat has been set.

Unlike the ordinary "hot-spot" type of heater which warms itself to incandescence and reflects heat directly to the front only, the Crosley TEMPERATOR is equipped with an electric fan which revolves very slowly, circulating all of the heated air, using every bit of the heat generated, and warming the whole room to a uniform temperature.

\$ 9.98 Western
Price
Slightly
Higher

Other types of heaters must be stored away during the summer, having no use other than as a heater. Not so with the TEMPERATOR! When the days get warm, a touch of the switch causes the TEMPERATOR to become a highly efficient electric fan. The heating element is cut off, the fan speeds up and whirls merrily, stirring the air and bringing refreshing coolness.



**The CROSLEY
TEMPERATOR
is Thermostatically
Controlled . .**

The Crosley TEMPERATOR when used as a heater can be set at any normal temperature desired. The temperature selected is maintained automatically by the thermostatic control, the TEMPERATOR being switched on and off so that it operates with the minimum of current.

The New Crosley Radio Line

The new Crosley radio line covers the entire field of radio—superheterodynes for both A. C. and D. C.—combination short and long wave superheterodyne receivers—battery operated superheterodyne receivers—a superheterodyne for automobiles and water craft. Both table and console models of unusual beauty and exceptional value, some equipped with dual speakers, cause the line to be most complete. A four tube table model superheterodyne at \$26.00—a five tube table model superheterodyne at \$29.95—a six tube superheterodyne table model at \$39.95—a nine tube table model superheterodyne with full class "B" amplification using the mercury vapor tube at only \$55.00—a twelve tube console with full class "B" amplification and meter tuning at only \$99.50—a ten tube short and long wave table model superheterodyne at \$75.00—these are some of the feature sets of the line.

All prices complete with tubes, tax paid. Western prices slightly higher.

Crosley Electric Refrigerators

The Crosley FULL SIZE Electric Refrigerators at amazingly low prices and with modern, up-to-date refrigeration features have from their very introduction attained outstanding success. Housewives and apartment owners everywhere have been high in their praise of the Crosley models which meet every refrigeration need and sell at astonishingly low prices.

They are made in the three sizes in greatest demand. Model C-35: 3½ cu. ft. NET Capacity. 7 sq. ft. Shelf Area. Dimensions: 52" high, 24¾" wide, 20" deep. \$89.50, F. O. B. Factories, Tax Extra. Model C-45: 4½ cu. ft. NET Capacity. 9 sq. ft. Shelf Area. Dimensions: 58½" high, 25¾" wide, 21" deep. \$99.50, F. O. B. Factories, Tax Extra. Model C-55: 5½ cu. ft. NET Capacity. 10¼ sq. ft. Shelf Area. Dimensions: 58½" high, 31¾" wide, 21¾" deep. \$139.50, F. O. B. Factories, Tax Extra.

THE CROSLEY RADIO CORPORATION

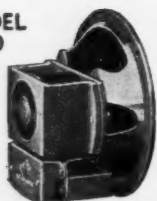
Powel Crosley, Jr., President

CINCINNATI

Home of "the Nation's Station"—WLW

YOU'RE THERE WITH A CROSLEY
CROSLEY RADIO

MODEL
150



6 1/2 inch Dynamic Speaker

MODEL
152-X



10 1/4 inch Dynamic Speaker

Model
154



8 inch Dynamic Speaker



Model 154-8" Auto Speaker



Single
Stud
Mounting



Model 150-6 1/2" Auto Speaker



MODEL
254

8 inch
Dynamic

Permanent Magnet Speaker

Magnavox SPEAKERS AND CAPACITORS



MAGNAVOX QUALITY

» YOU can depend upon Magnavox quality. Ever mindful of its record of leadership and achievement in the field of acoustics, Magnavox promises that fluctuations in raw material markets will never alter Magnavox standards one iota. Magnavox has carried on - - maintaining uniformity of production through trying times, and today stands higher than ever in the regard of manufacturers who appreciate quality.

Magnavox is in an unusual position which makes it possible to maintain this uniform quality in production because every part going into a Magnavox Speaker is made in our own factory. This also makes possible a better product for the same money.

» MAGNAVOX SPEAKERS

Magnavox will continue to offer the finest and newest Dynamic Speaker developments. "Make them Better" is the guiding principle of Magnavox engineering. Look to Magnavox for the last word in Dynamic Speaker performance.

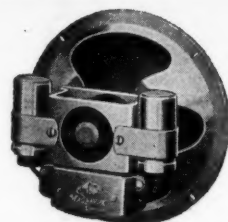
There is a Magnavox Speaker in a size and type for the requirements of every set builder - - priced well within the commercial range.

» MAGNAVOX CAPACITORS

Today, large manufacturers are looking to Magnavox for engineering service and leadership in the development of Capacitors. New modern automatic equipment and scientific fabrication make possible the manufacture of Magnavox Capacitors in quantities to satisfy any requirements, with utmost precision in assembly. A skilled production staff and 12 years of experience in building Electrolytic Capacitors safeguards the uniformity and high quality of Magnavox units and insures freedom from impurities, which means longer life and better performance. Magnavox Capacitors are available in wet or dry types for every commercial requirement.

» MAGNAVOX SERVICE

Magnavox products are fully protected by patents and backed by a staff of highly trained engineers who are ready to help you solve your acoustic and filtering problems. You are invited to submit your specifications and ask for samples of Magnavox products which interest you.



Speaker, Capacitor Combination



MERSHON
Electrolytic
Capacitor

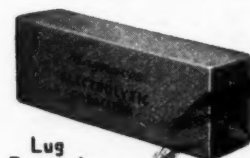
Stud
Type
Mounting



MERSHON
Electrolytic
Capacitor

Clamp
Type
Mounting

MAGNAVOX Capacitor



Lug
Terminals



MAGNAVOX Bypass
Capacitor

with
flange

Magnavox Company Ltd.

ESTABLISHED 1911

GENERAL OFFICES AND FACTORY, FORT WAYNE, INDIANA

Subsidiaries

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MAGNAVOX (AUSTRALIA), LTD., MAGNAVOX (GREAT BRITAIN), LTD.